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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,094	04/19/2004	Laurent Simony	61170-00030USPX	1471

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INTELLECTUAL PROPERTY SECTION
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EXAMINER

WHIPKEY, JASON T

ART UNIT	PAPER NUMBER
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2622

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12/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/827,094	Applicant(s) SIMONY, LAURENT	
	Examiner Jason T. Whipkey	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 15-18 and 26-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 15,26,30,31,36,37,39,44 and 45 is/are rejected.
- 7) ☒ Claim(s) 16-18,27-29,32-35,38,40-43 and 46 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All. b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Restriction

1. Applicant's election without traverse of Group III in the reply filed on September 25, 2007, is acknowledged.

Claim Objections

2. Claims 31-35 and 39-43 are objected to because of the following informalities:
 - In claims 31 and 39 on line 3, "selective couple" should probably read, "selectively couple".Claims 32-35 and 40-43 are objected to because they are dependent upon claim 31 or claim 39.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 15, 26, 30, 31, 36, 39, and 44 are rejected under 35 U.S.C. 102(e) as being anticipated by Rossi (U.S. Patent Application Publication No. 2004/0207740).

Regarding **claims 15 and 26**, Rossi discloses a circuit (see figures 1 and 4), comprising:

- a pixel sensor (pixel cell 150);

- a transistor (row select transistor 188) coupling the pixel sensor to a bit line (170 or 470, depending on the figure);

- a first sampling capacitor (420) selectively coupled to the bit line (via SH_S switch 412);

- a second sampling capacitor (418) selectively coupled to the bit line (via SH_R switch 410);

- a bias current generator (a current source; see paragraph 10) selectively coupled to the bit line (via switch 436);

- a control circuit (inherently present to operate the switches) which operates to selectively couple the bit line to the first sampling capacitor during a first sample period (see Figure 5 and paragraph 11) and selectively couple the bit line to the second sampling capacitor during a second sample period (see paragraph 11), the control circuit further operable, during each of the first and second sample periods, to selectively couple the bias current generator to the bit line to bias the transistor into a follower configuration (the VIn_en signal, as

shown in Figure 5, has the current source coupled to the column line when each of the capacitors are coupled to the column line by the switches).

Regarding **claim 30**, Rossi discloses:

during the first sample period a first non-zero level of pixel voltage is applied to a gate of the transistor biased in the follower configuration, and wherein during the second sample period a second non-zero level of pixel voltage, different from the first level of pixel voltage, is applied to the gate of the transistor biased in the follower configuration (see paragraph 11).

Regarding **claims 31 and 39**, Rossi discloses:

the control circuit operating to selectively couple the bias current generator to the bit line further comprises operating, for each sample period, to selectively couple the bias current generator only for a first time duration so as to obtain for one of the sampling capacitors a final state of stable charge (note where V_{In_en} is high in Figure 5), the control circuit further operating to terminate selective coupling of the sampling capacitor to the bit line for the sample period a second time duration after termination of the first time duration (note where V_{In_en} is low in Figure 5).

Regarding **claims 36 and 44**, Rossi discloses:

the bias current generator is connected to the bit line by an interrupter circuit (switch 436) controlled by the control circuit.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 37 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rossi in view of Barna (U.S. Patent No. 6,919,551).

Claims 37 and 45 can be treated like claims 15 and 26, respectively. However, Rossi is silent with regard to precharging each sampling capacitor to an initial value.

Barna discloses a readout circuit for an imaging device, including:

means for precharging (switch 1530 and the Vclamp voltage; see Figure 15 and column 12, lines 6-12) each sampling capacitor (1514 and 1516) to an initial value before each sample period (see column 12, lines 6-12).

Combining the precharging operation disclosed by Barna with the readout circuit disclosed by Rossi would have yielded the predictable result of having the capacitors reset to a known charge. For this reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have Rossi's system precharge each sampling capacitor to an initial value.

Allowable Subject Matter

7. Claims 16-18, 27-29, 32-35, 38, 40-43 and 46 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding **claims 16-18 and 27-29**, no prior art could be located that teaches or renders obvious a circuit with a pixel sensor, a transistor coupling the pixel to a bit line, first and second sampling capacitors selectively coupled to the bit line respectively during a first and second period, and a bias current generator selectively coupled to the bit line at *a beginning of each* of the first and second sample periods.

Regarding **claims 32, 33, 40, and 41**, no prior art could be located that teaches or renders obvious a circuit with a pixel sensor, a transistor coupling the pixel to a bit line, and first and second sampling capacitors selectively coupled to the bit line respectively during a first and second period, wherein at the end of the sample period, wherein the duration of the disconnection of the sampling capacitor from the bit line is chosen to obtain at the end of the sample period, a residual current flowing through the follower transistor less than a threshold level of the noise of the follower transistor.

Regarding **claims 34, 35, 42, and 43**, no prior art could be located that teaches or renders obvious a circuit with a pixel sensor, a transistor coupling the pixel to a bit line, and first and second sampling capacitors selectively coupled to the bit line respectively during a first and second period, wherein the duration that the bias current generator is coupled to the bit line is a fraction of the duration of the sample period.

Regarding **claims 38 and 46**, no prior art could be located that teaches or renders obvious a circuit with a pixel sensor, a transistor coupling the pixel to a bit line, first and second sampling capacitors selectively coupled to the bit line respectively during a first and second period, wherein a first terminal of each sampling capacitor is grounded.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to Applicant's disclosure.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason Whipkey, whose telephone number is (571) 272-7321. The examiner can normally be reached Monday through Friday from 9:30 A.M. to 6 P.M. eastern standard time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lin Ye, can be reached at (571) 272-7372. The fax phone number for the organization where this application is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private

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PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JTW

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December 6, 2007


TUAN HO
PRIMARY EXAMINER